

AGRICULTURE.

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No. III.

BRITISH OPIUM.

The sum of **THIRTY GUINEAS**, being the premium offered in the year 1822, was this session given to Messrs. **COWLEY** and **STAINES**, of Winslow, Bucks, for cultivating twelve acres of Poppies, and obtaining therefrom 196lbs. of **OPIUM**. The following communications have been received from the candidates on the subject.

SIR,

THE Society of Arts, &c. having, by the offer, in 1822-23, of the premium No. 29, extended their encouragement to the cultivation of the *papaver somniferum* for opium in 1823, we respectfully offer ourselves as candidates for that premium, having in that year collected one hundred and ninety-six pounds of opium from poppies growing on twelve acres, one rod, and thirteen poles of land.

The enclosed specimen will exemplify the quality of the opium, which appears to be precisely similar to that which we have obtained in the last few years.

The general system of cultivation pursued by us last year was nearly the same as described in the 40th vol. of the Society's Transactions. The intervals between the rows were diminished from twenty-one to twenty inches; the seed was got in between the 14th of February and the 6th of March; the crop was very abundant, and the heads remarkably large. The interval diminished an inch was

found to afford sufficient room for the people, but not to such an extent as to encourage any further reduction.

One of the greatest obstacles to the cultivation of opium is obviously the rainy weather which generally prevails during the season for its collection. In the last season we had scarcely a day without frequent showers, which of course carried off a considerable quantity of opium. As a preventative from some of the ill effects of the weather, we derived much advantage from an alteration in the position of the blades of the scarificator from the perpendicular to an angle of forty-five degrees, the object of which was to prevent the rain from lodging upon or entering the incision. This intention it was found to fulfil, by forming the upper side of each incision into a sort of flap for the protection of the lower side.

We also perceived that it was a considerable improvement to operate upon alternate rows: we mean, for instance, to scarify and scrape the first, third, fifth, &c. rows throughout the field, and then to proceed with the second, fourth, sixth, &c. This was found completely to obviate the wasteful consequences of the rows being wiped by the clothes of the collectors.

For the encouragement of those who may be deterred from cultivating opium by a want of resident labourers, we beg leave to state, that we last year employed, by way of experiment, six migrating Irish, all of whom were docile, peaceable, and industrious: they were paid one shilling per day, to work eleven hours. We also solicit permission to add, by way of a general guide to such as may wish to know how far the cultivation of the poppy can be extended at any particular place, that our population consists of about eleven hundred persons, of whom the female poor are all

lace-makers; of this number we can bring into the field about a sufficient number to collect opium from fifteen acres of land; if we cultivate much more than that quantity we must do it by the Irish, great numbers of whom are every year seeking employment during the opium season. The greatest number we employed at one time was one hundred and sixty-five. The collection was begun July 21st, and finished August 7th.

The following is an account of the expense of *collecting* the opium:

	£	s.	d.
Paid to the labourers	76	5	8½
Beer consumed by ditto, 6½ hogsheads	17	11	0
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	£93	16	8½
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From the above account it will appear that the expense of collecting amounted to 9s. 6¾d. per lb.

The character of the English opium continues to be generally approved by the medical profession: it now sells at two shillings per lb. *above* the best foreign; and we believe that nothing but the carelessness of cultivators is likely to bring it into disrepute. One of the most positive directions given to those employed in collecting opium, should be, to avoid the fall of petals, stamina, &c. into the receivers, and to take care if an implement falls to the ground, that it be properly cleaned from grit, &c., a small quantity of which would seriously injure the sample. Whilst every precaution is scrupulously observed for insuring the purity of the article, we have no doubt the profession will cheerfully continue to pay a corresponding price.

The land on which the above-mentioned crop was sown,

was in the following state with respect to succeeding crops, viz.:

A. R. P.

4 3 22 had borne in four successive years crops of poppies, with stone turnips after each, fed off with sheep.

3 3 10 had borne one crop of poppies, succeeded by stone turnips fed off with sheep.

0 2 31 wheat stubble, well manured.

2 3 30 clover ley, well manured; had been twice mown.

12 1 13

From the apparent exhaustion of the soil, and the subsequent goodness of the crop on the clover ley, we are of opinion that poppies succeed better after clover than after any other crop.

The labourers were paid at the following rates per day:—men, 1s.; women, 10d.; children above ten years of age, 6d. to 9d.; ditto under ditto, 3d. to 6d. The men to work eleven hours per day, the women and children ten, all being allowed beer twice a day, which was found to contribute more to their satisfaction than higher wages used to do without that allowance.

We are, Sir,

&c. &c. &c.

A. Aikin, Esq.
Secretary, &c. &c.

JOHN COWLEY,
WM. STAINES.

P. S. We have enclosed a sample of the opium, and an improved scarificator, as before named, also a worn out one of the same construction.

CERTIFICATES.

SIR, Winslow, January 31, 1824.

I HEREBY certify, that, to my knowledge, Messrs. Cowley and Staines collected, in the year 1823, one hundred and ninety-six pounds of opium from poppies of their growth: it was weighed in my presence, and was of the same quality as the enclosed sample.

REUBEN STUCHBERY.

A. Aikin, Esq.
Secretary, &c. &c.

SIR, 2, Newman's-row, Lincoln's Inn-fields,
February 3, 1824.

I BEG leave to state, for the information of the Society of Arts, that I have continued the use of British opium during the last year, and up to the present time; and with precisely the same results as mentioned in the certificates I have had the honour of forwarding to the Society the two preceding years.

I am, Sir,

&c. &c. &c.

A. Aikin, Esq.

Secretary, &c. &c.

THOS. CLARKE,

Surgeon, &c.

SIR, Winslow, February 25, 1824.

WE beg leave to transmit to you the following accounts and observations for the further elucidation of the cultivation of poppies, in obedience to the wishes of the Society, as expressed in your communication of the 13th instant.

A prominent question in your letter demands the nature and value of the soil on which our opium has been produced. The soil is somewhat varied, but consists in all parts of a good loam, from twelve to six inches deep, lying mostly upon sand, but in some places upon clay.

A porous subsoil appears to us as a circumstance of the first rate importance, for where it consists of clay our crops have invariably been inferior to those which have grown on such parts as were situated upon the sand, although assisted with more manure; and this too, when, owing to frost, no injury could be attributable to the treading of the sheep when feeding off the turnips. So strong, indeed, is our conviction of the ill effects of an impervious subsoil, that we have no hesitation in saying, that however good the soil, or however dry it may appear, if it be situated immediately above clay, no profit can be extracted from it by the growth of poppies, so frequent will be the partial (or total) failure of the crop.

Two respectable farmers in this neighbourhood, in consequence of our recommendation, grew upwards of an acre of poppies each, and extracted opium from them exactly after our method. The crop was far from good with either, and late with both, owing, apparently, to late sowing, viz. in the beginning of April; the general appearance of the plants showing that the soil, in both cases, was adapted to their flourishing growth. We beg leave to introduce the following remarks upon these soils, as being examples of the growth of poppies on two distinct species of land, each different from our own.

The earth in one case consisted of a free-working grey loam, containing a large proportion of calcareous matter, and lying, in depth about ten or twelve inches, immediately

upon a rock of limestone. This land is perfectly dry, owing, probably, to the existence of a sufficient number of fissures in the rock to carry off the rain; for, as is well known, a stratum of limestone is often as retentive of water as one of clay. This field is considered extremely fertile of wheat, turnips, barley, and peas.

In the other instance the soil lies upon gravel, is of a black colour, and contains a great proportion of vegetable mould,—a kind of earth known to agriculturists in this district by the term hen-mould, and, we believe, more extensively by the name of rotten loam. The following habits are common to this variety of soils: they work freely, do not bind in dry weather, bear a large quantity of straw without a proportionate measure of corn, they are spontaneously productive of lactiferous plants, such as *sonchus asper*, *sonchus arvensis*, *leontodon taraxacum*, *picris echioides*, &c. In the instance of which we are now speaking, the poppies were sown in part of a bean-field; and the cultivator is much pleased to observe that the crop of wheat which is now succeeding both is superior, as respects cleanliness and vigour, where the poppies grew, to that which follows the beans, a circumstance which has convinced him that the poppy is, comparatively, by no means an exhausting crop. We may observe in this place, that each of these experimenters is about to sow again for this season.

The rent of the land we occupy, as seen in the subjoined table, you will probably accept as an answer to your inquiries as to its value; although we must beg leave to observe, that the rent of Western Field is generally considered to be double its annual value. The scarcity of sandy subsoil in this parish, which is by no means an arable one, having hitherto been our chief inducement to occupy it.

We should have remarked, that a tolerably correct idea of the fitness of any particular soil for the growth of poppies may generally be formed by observing the shape in which it produces the capsules of the poppies. On suitable land these generally assume the oblate spheroid form, while in unfavourable situations they constantly degenerate into an oval shape, an accident which may usually be traced to disease of the root; and which invariably diminishes the product of opium, and, in a lesser degree, that of seed also.

We annex the two following tables in answer to your inquiries for the expenses of the cultivation. They are extracted from our books with the greatest care: if any slight inaccuracy exist it will be in the details and not in the total, and will be owing to the great difficulty of perfectly separating the expenses of operations in many cases concurrent.

We are, Sir,

A. Aikin, Esq.

&c. &c. &c.

Secretary, &c.

COWLEY & STAINES.

Table of the expenses of cultivating 12a. 1r. 22p. of white poppies, and extracting opium, seed, and extract therefrom:—

	£	s.	d.
Rent of Western Field, 4a. 3r. 22p.	20	0	0
Twelve poor's-rates for ditto, 8s. 6d. each	5	2	0
Rent of part of Shipton Field, 7a. 2r. 0p.	18	15	0
Twelve poor's-rates for ditto, 7s. 6d. each	4	10	0
Bought manure	7	0	0
Carting of ditto, and of poppy-straw dung	11	10	0
Carried forward	£66	17	0

	£	s.	d.
Brought forward	66	17	0
Ploughing for turnips	7	10	0
Harrowing for ditto	1	0	0
Turnip seed	1	2	0
Sowing ditto	0	3	6
Hoeing turnips twice, and partly three times	9	0	0
Ploughing turnip land and clover ley for poppies	9	10	0
Raking land for poppies	3	2	0
Drilling poppy seed, and couching	2	8	0
Dutch hoeing ditto	3	15	3
Setting out ditto, and hand-weeding	13	4	0
Hoeing ditto twice, and weeding	7	4	0
Collecting opium, evaporating ditto, and beer	103	5	0
Pulling poppies with the root	6	5	0
Carting ditto to Home-close-green, and shocking } them there to dry }	6	7	0
Picking off the heads, and building the straw into } a rick }	5	18	0
Thrashing machine, one day	1	1	0
Six horses for ditto, one day	1	0	0
Eight men and six boys for ditto	0	19	0
Expense of winnowing seed	0	7	6
Paid for labour and coals employed in making } extract }	8	10	0
Carriage of seed, opium, and extract to London	6	3	0
Proportion of charges for making and repairing } implements, &c. }	9	10	6
	<u>£274</u>	<u>1</u>	<u>9</u>

Table of the produce of the above land, in opium, seed, extract, and turnips.

	£	s.	d.
Opium 196 lbs., at 1 <i>l.</i> 10 <i>s.</i> 6 <i>d.</i> per lb. . . .	298	18	0
Seed 25 cwt. 1 qr. 22 lb., at 12 <i>s.</i> per cwt. . . .	15	5	3
Ditto unsold, about 5 cwt., worth	3	0	0
Extract 381 lb., at 1 <i>s.</i> 6 <i>d.</i>	28	11	6
Turnips 10 acres, at 2 <i>l.</i> 10 <i>s.</i> per acre	25	0	0
	<hr/> £370 14 9 <hr/>		

No. IV.

NATURALIZATION OF NEW ZEALAND FLAX.

The Thanks of the Society were presented to Mr. WM. SALISBURY of Brompton, for the following communication relative to naturalizing in the British Islands the PHORMIUM TENAX, or NEW ZEALAND FLAX.

SIR,

Brompton, Middlesex, April 6, 1824.

DURING my late researches into the rural economy of the southern parts of Ireland, I discovered that the *phormium tenax*, or New Zealand flax plant, was growing there in the fullest luxuriance; and that it appeared to have become, in a great degree, naturalized to the climate and soil of that country.

As the qualities of New Zealand flax, as applied to naval purposes, &c. have of late been so much the subject of inquiry and conversation, particularly since the return of

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